



WIRELESS CONSULTANTS

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Geographic Service Area

AT&T Wireless has embarked upon a significant initiative to bring 4G wireless coverage to all of its wireless communications facilities across the nation. The attached RF Coverage Maps depict the existing coverage situation around the project site, with maps depicting 1) coverage without the proposed facility, 2) overall network coverage with the proposed facility, and 3) coverage with the proposed facility alone. These maps display a stark contrast in coverage, since existing conditions lack sufficient AT&T wireless coverage due to the inadequacy of the surrounding sites at covering the targeted service area, and with the significant topographical variations in the project area.

One critical caveat in reviewing the attached coverage plots is that coverage is only one aspect of the project. Carriers have two essential goals in network rollout: coverage and capacity. Coverage maps will only show the quality of signal over a distance. Will a cell phone have reception? How good is the signal? Are dropped calls likely? The answers to these questions are represented in a coverage map. Tantamount to coverage is the other wireless goal: capacity. Unless AT&T installs the proposed facility, customers will suffer from slow and frustrating data coverage in the areas where they get coverage. Customers are now paying for 4G data coverage on their phones, and cell towers are increasingly “maxed out” with the bombardment of data usage at a given tower. Therefore, you may look at the attached coverage maps and think, “Huh! It’s very green. Why do they need to fuss with this site if there’s already good coverage?” That’s only half of the battle.

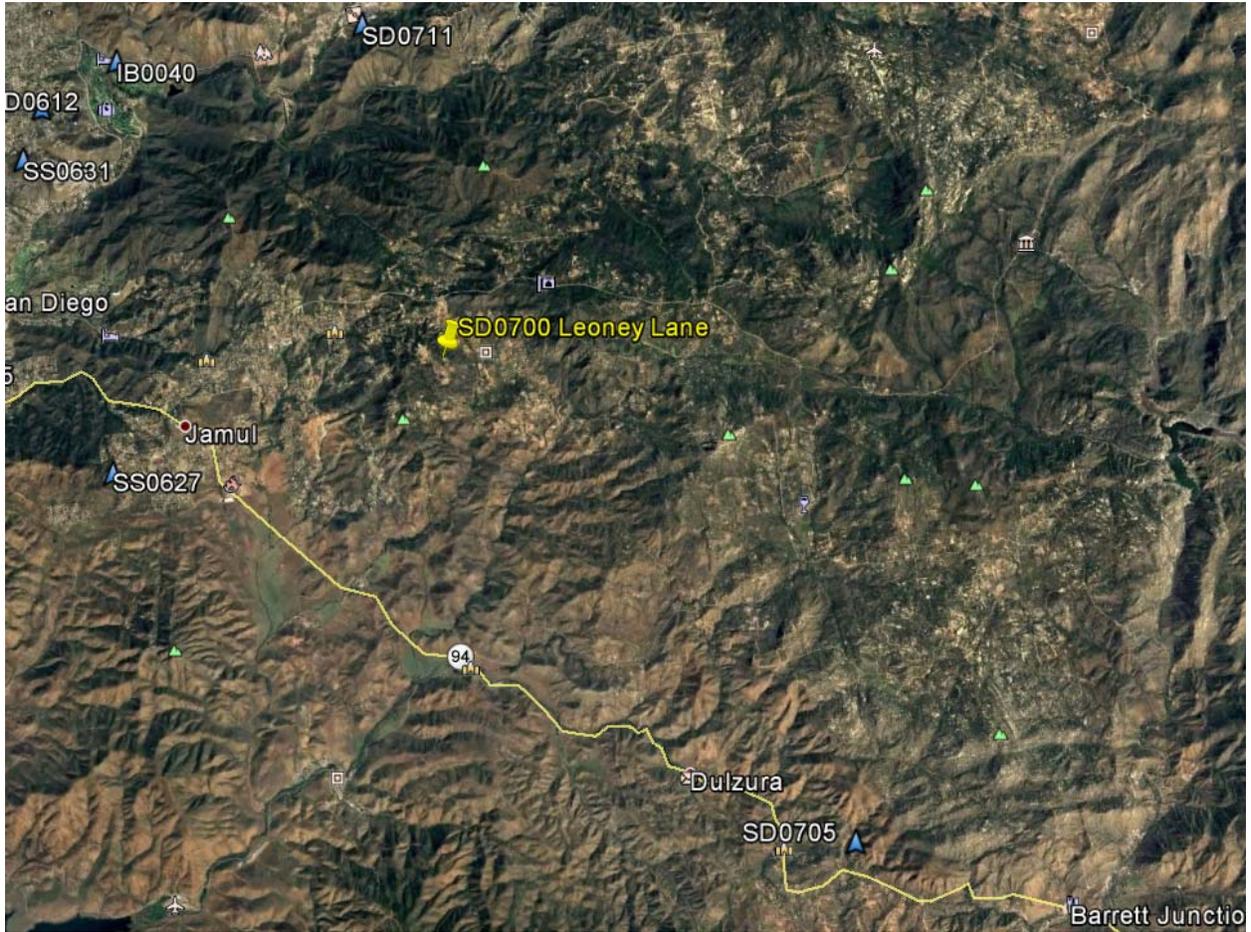
The installation of this newer, faster network will greatly enhance personal, business and emergency communications for this area of rural San Diego County. Semi-rural communities of the County, like the Jamul area, are especially prone to isolation. Communications are lost if phone lines are burned, and commuters face danger if there is an accident or car trouble along the highway. The communications that a facility like this provides are vital to public safety. It should be noted that *public health, safety and welfare* is a key finding for a Major Use Permit. Regarding the attached RF Coverage Maps, note the following color coding:

- Gray: No coverage
- Red: Little to no coverage (connection cannot be maintained)
- Yellow: Weak coverage (connection may not be able to be maintained)
- Teal: Moderate coverage (insecure connection)
- Green: Good coverage

What is not readily evident in the maps are the significant spans of rolling hills and winding roads that make the purveyance of wireless coverage exceedingly difficult. In rural and semi-rural communities such as these, the service area provided by any single wireless facility becomes smaller and smaller because the antennas are not able to “see” over and around hills, let alone provide the data capacity and GPS services that users need. When looking to build a new wireless facility within a given search ring in these areas, or upgrade an older existing facility, AT&T of course seeks to gain as much height as possible in order to maximize coverage and capacity in the interests of its customers. For the subject facility located on Leoney Lane, south of Lyons Valley Road, having good, unobstructed visibility in all directions maximizes the service provided by this facility to the increased benefit of the community and reduces the need to construct additional facilities in order to meet the targeted coverage objective.

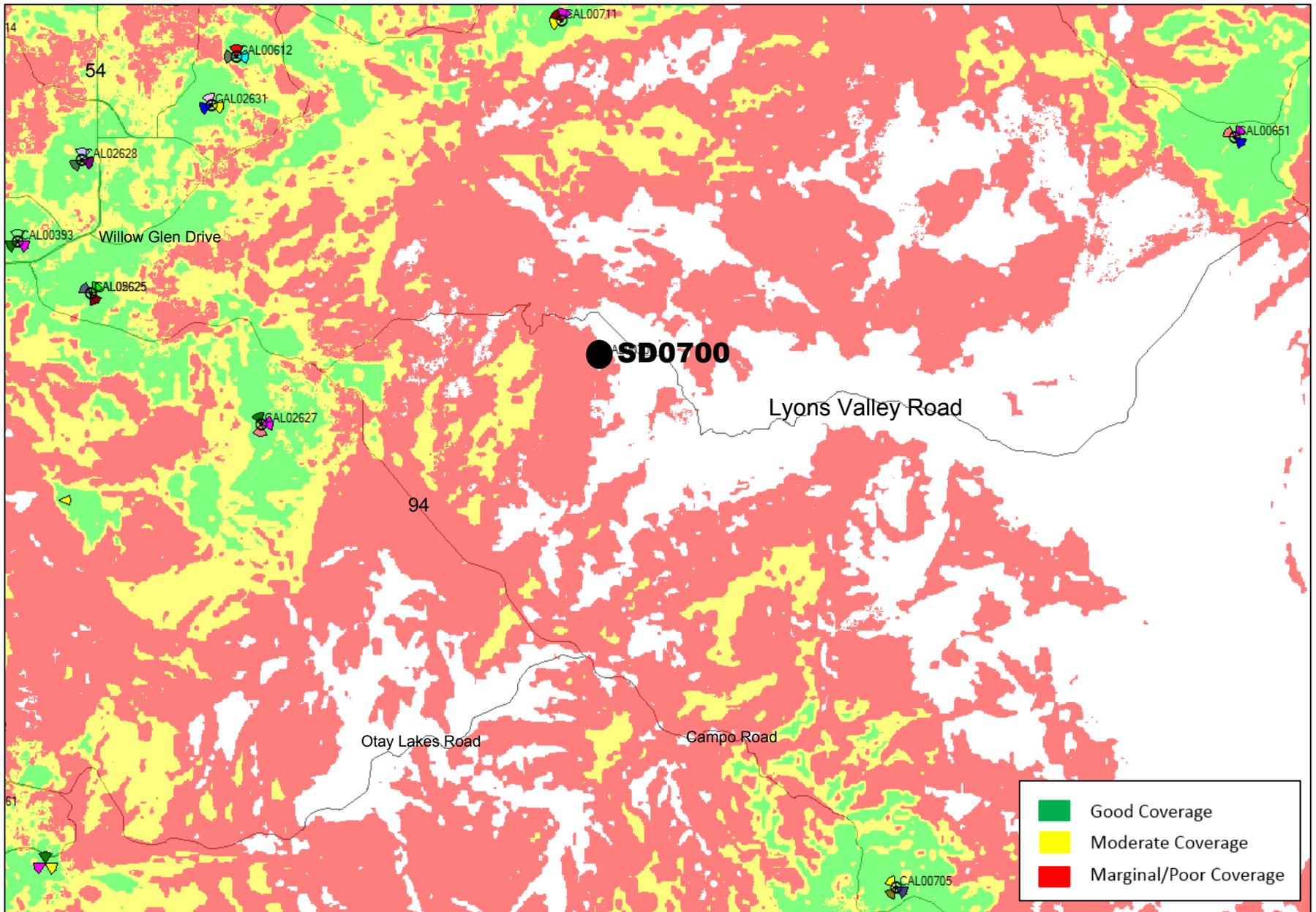
As part of its fixed wireless local loop (FWLL) service, AT&T has committed to provide broadband services to 13 million more rural homes and businesses through wireless connection rather than traditional copper/fiber. AT&T now has funding to proceed with the proposed project at Leoney Lane with renewed objective to not only provide the needed network coverage objective on the surrounding roadways for mobile services and capacity but now also to provide WLL technology. This technology provides home phone and high speed broadband Internet service through a link to the nearest cell tower. The FWLL technology means that AT&T can help provide quality phone service and high speed broadband coverage to areas that do not have the fiber infrastructure to provide these services.

The proposed communications facility at 15598 Leoney Lane is intended to service a gap in coverage in the Lyons Valley area of Jamul. As evidenced in the zoning drawings, coverage from the panel antennas is aimed in three different directions (called antenna “sectors”): 30 degrees (northeast) across Lyons Valley Road as much toward Skyline Truck Trail as possible, 130 degrees (southeast) toward Daley Truck Trail and Isla Vista Road, and 270 degrees (west) down into the valley toward Rocky Mountain Road. These directions target the entire coverage gap evidenced in the coverage maps. In the map below, AT&T site SD0711 is located 4.3 miles away; site SD0330 in Alpine is located 6.5 miles away; SD0705 in Dulzura is located 7.5 miles away; and site SD0328 Los Pinos is located 14.2 miles away. In addition to the distance apart creating a service gap, topographical variations, including valleys lower in elevation and winding roads, cause significant loss in coverage. These gaps, coupled with the capacity demands described above, make the installation of a new facility at the proposed location crucial to AT&T’s coverage needs.

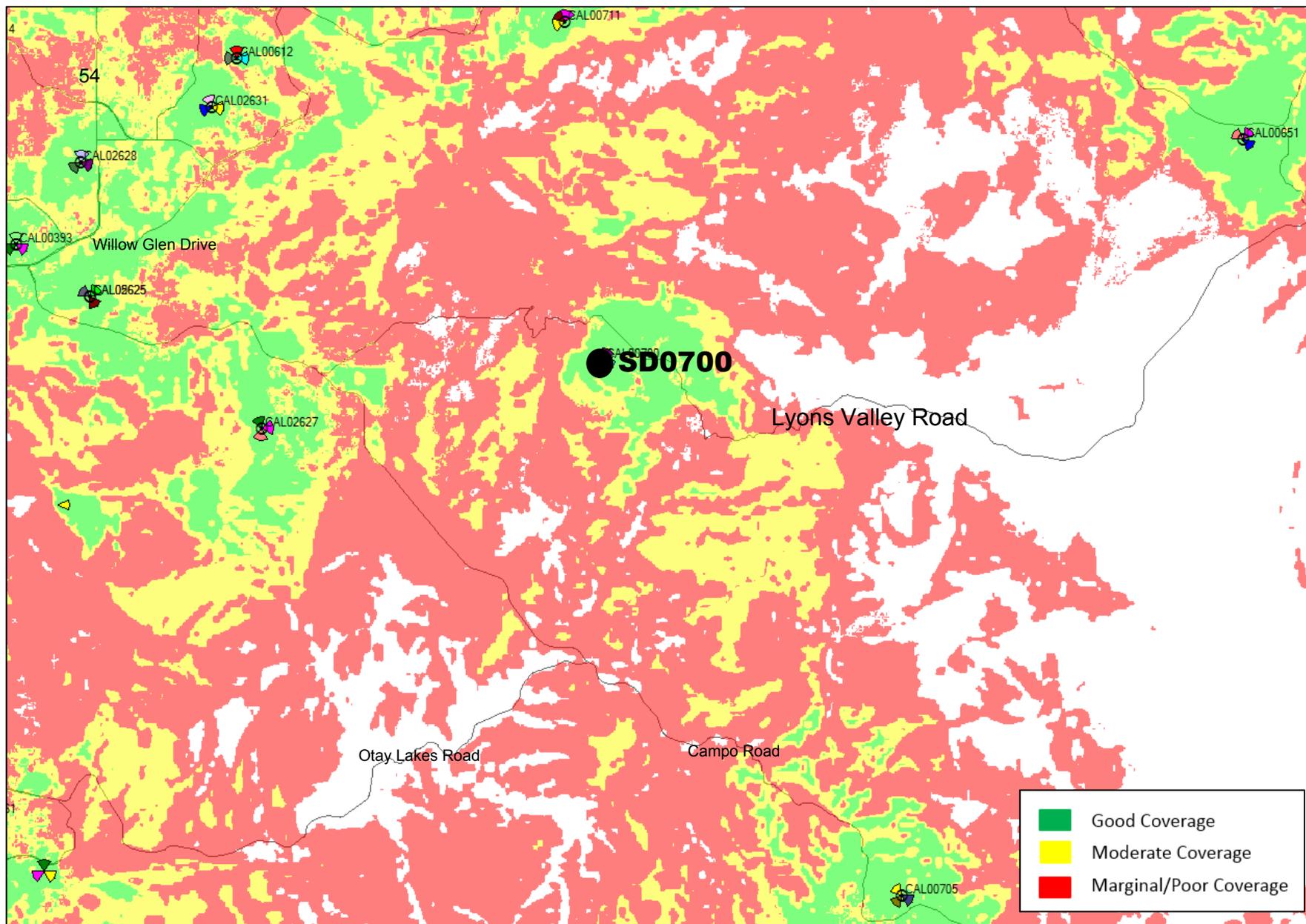


The following pages show maps of the existing coverage and the coverage with the proposed facility.

Coverage Without SD0700



Coverage With SD0700



AT&T Mobility Radio Frequency Statement
15598 Leoney Lane, Jamul, San Diego County, CA

AT&T RF statement

I am the AT&T radio frequency engineer assigned to the proposed wireless communications facility at 15598 Leoney Lane, Jamul, CA (the "Property"). Based on my personal knowledge of the Property and with AT&T's wireless network, as well as my review of AT&T's records with respect to the Property and its wireless communications facilities in the surrounding area, I have concluded that the work associated with this permit request is needed to close a significant service coverage gap in an area roughly bordered by Skyline Truck Trail to the north, Isla Vista Road to the west, and Honey Springs Road to the south and east. This portion of San Diego County includes dozens of homes, campgrounds, farms, and various other points of interest in the immediate vicinity. To remedy this service coverage gap, AT&T needs to construct a new wireless communications facility.

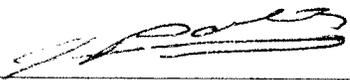
The service coverage gap is caused by inadequate infrastructure in the area. As explained further in Exhibit 1, AT&T's existing facilities cannot adequately serve its customers in the desired area of coverage, let alone address rapidly increasing data usage. The site will help to close the gap in coverage and help address rapidly increasing data usage driven by smart phone and tablet usage. This site is part of an effort to fully deploy 4G LTE technology in the area. 4G LTE is capable of delivering speeds up to 10 times faster than industry-average 3G speeds. LTE technology also offers lower latency, or the processing time it takes to move data through a network, such as how long it takes to start downloading a webpage or file once you've sent the request. Lower latency helps to improve the quality of personal wireless services. What's more, LTE uses spectrum more efficiently than other technologies, creating more space to carry data traffic and services and to deliver a better overall network experience. Besides the normal mobility use, customers also use the network for E911 services and in the near future for Public Safety services. Wireless connectivity and Broadband speeds have become a necessity and a normal utility for our customers.

AT&T uses industry standard propagation tools to identify the areas in its network where signal strength is too weak to provide reliable in-building service quality. This information is developed from many sources including terrain and clutter databases, which simulate the environment, and propagation models that simulate signal propagation in the presence of terrain and clutter variation. AT&T designs and builds its wireless network to ensure customers receive reliable in-building service quality. In-building service is critical as customers increasingly use their mobile phones as their primary communication device (more than 49% of American households are now wireless only) and rely on their mobile phones to do more (E911, GPS, web access, text, etc.).

Exhibit 2 is a map of the existing LTE 4G service coverage (without the proposed installation at the Property) in the area at issue. It includes service coverage provided by existing AT&T sites. The green shaded areas depict areas within a signal strength range that provide acceptable in-building service coverage. In-building coverage means customers are able to place or receive a call on the ground floor of a building. The yellow shaded areas depict areas within a signal strength range that provide acceptable in-vehicle service coverage. In these areas, an AT&T customer should be able to successfully place or receive a call within a vehicle. The red and white areas depict areas in which a customer might have difficulty receiving a consistently acceptable level of service. The quality of service experienced by any individual customer can differ greatly depending on whether that customer is indoors, outdoors, stationary, or in transit. Any area in the yellow, red, or white category is considered inadequate service coverage and constitutes a service coverage gap.

Exhibit 3 to this Statement is a map that predicts service coverage based on signal strength in the vicinity of the Property if antennas are placed as proposed in the application. As shown by this map, placement of the equipment at the Property closes the significant LTE 4G service coverage gap. Exhibits 4 and 5 are maps depicting service coverage without and with the proposed facility zoomed closer in to the Property.

I have a MSEE degree from Cal State Long Beach university in Wireless Telecommunications and have worked as an engineering expert in the wireless communications industry for over 22 years.



Chetan Patel
AT&T Mobility Services, LLC
Network, Planning & Engineering
RAN Design & RF Engineering
January 25th, 2017

EXHIBIT 1
Prepared by AT&T Mobility

AT&T's digital wireless technology converts voice or data signals into a stream of digits to allow a single radio channel to carry multiple simultaneous signal transmissions. This technology allows AT&T to offer services such as secured transmissions and enhanced voice, high-speed data, texting, video conferencing, paging and imaging capabilities, as well as voicemail, visual voicemail, call forwarding and call waiting that are unavailable in analog-based systems. With consumers' strong adoption of smartphones, customers now have access to wireless broadband applications, which consumers utilize at a growing number.

Mobile data traffic in the United States grew by 75,000 percent over a six-year span, from 2001-2006. And in the eight years that followed, mobile data traffic on AT&T's national wireless network increased 150,000 percent (from 2007-2015). The FCC noted that U.S. mobile data traffic grew almost 300% in 2011, and driven by 4G LTE smartphones and tablets, traffic was projected to grow an additional 16-fold by 2016.

Mobile devices using AT&T's technology transmit a radio signal to antennas mounted on a tower, pole, building, or other structure. The antenna feeds the signal to electronic devices housed in a small equipment cabinet, or base station. The base station is connected by microwave, fiber optic cable, or ordinary copper telephone wire to the Radio Network Controller, subsequently routing the calls and data throughout the world.

The operation of AT&T's wireless network depends upon a network of wireless communications facilities. The range between wireless facilities varies based on a number of factors. The range between AT&T mobile telephones and the antennas in San Diego County, for

example, is particularly limited as a result of topographical challenges, blockage from buildings, trees, and other obstructions as well as the limited capacity of existing facilities.

To provide effective, reliable, and uninterrupted service to AT&T customers in their cars, public transportation, home, and office, without interruption or lack of access, coverage must overlap in a grid pattern resembling a honeycomb.

In the event that AT&T is unable to construct or upgrade a wireless communications facility within a specific geographic area, so that each site's coverage reliably overlaps with at least one adjacent facility, AT&T will not be able to provide adequate personal wireless service to its customers within that area. Some consumers will experience an abrupt loss of service. Others will be unable to obtain reliable service, particularly if they are placing a call inside a building.

Service problems occur for customers even in locations where the coverage maps on AT&T's "Coverage Viewer" website appear to indicate that coverage is available. As the legend to the Coverage Viewer maps indicates, these maps depict a high-level *approximation* of coverage, which may not show gaps in coverage; *actual* coverage in an area may differ substantially from map graphics, and may be affected by such things as terrain, foliage, buildings and other construction, motion, customer equipment, and network traffic. The legend states that AT&T does not guarantee coverage and its coverage maps are not intended to show actual customer performance on the network, nor are they intended to show future network needs or build requirements inside or outside of AT&T's existing coverage areas.

It is also important to note that the signal losses and service problems described above can and do occur for customers even at times when certain other customers in the same vicinity

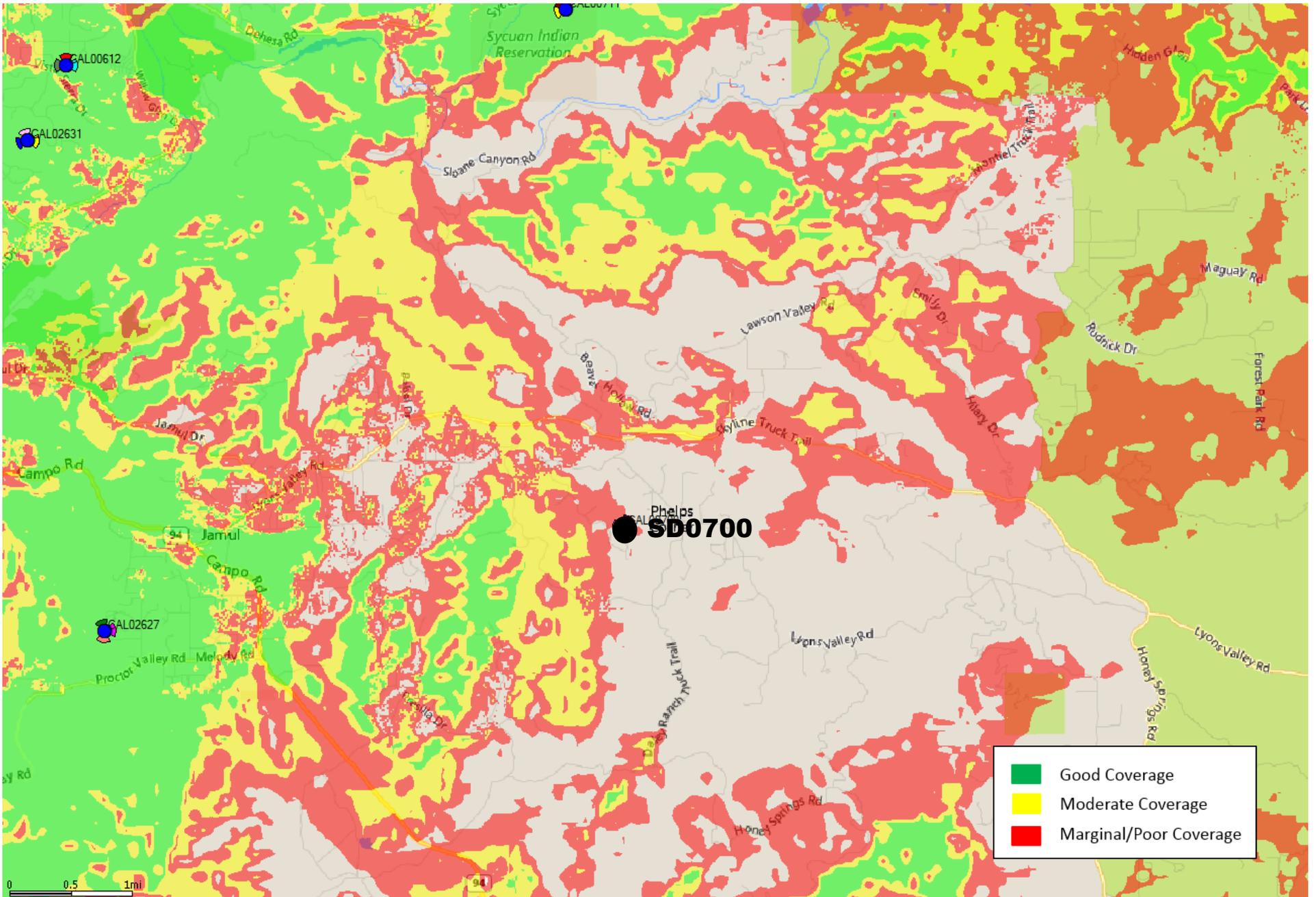
may be able to initiate and complete calls on AT&T's network (or other networks) on their wireless phones. These problems also can and do occur even when certain customers' wireless phones indicate "all bars" of signal strength on the handset.

The bars of signal strength that individual customers can see on their wireless phones are an imprecise and slow-to-update estimate of service quality. In other words, a customer's wireless phone can show "four bars" of signal strength, but that customer can still, at times, be unable to initiate voice calls, complete calls, or download data reliably and without service interruptions.

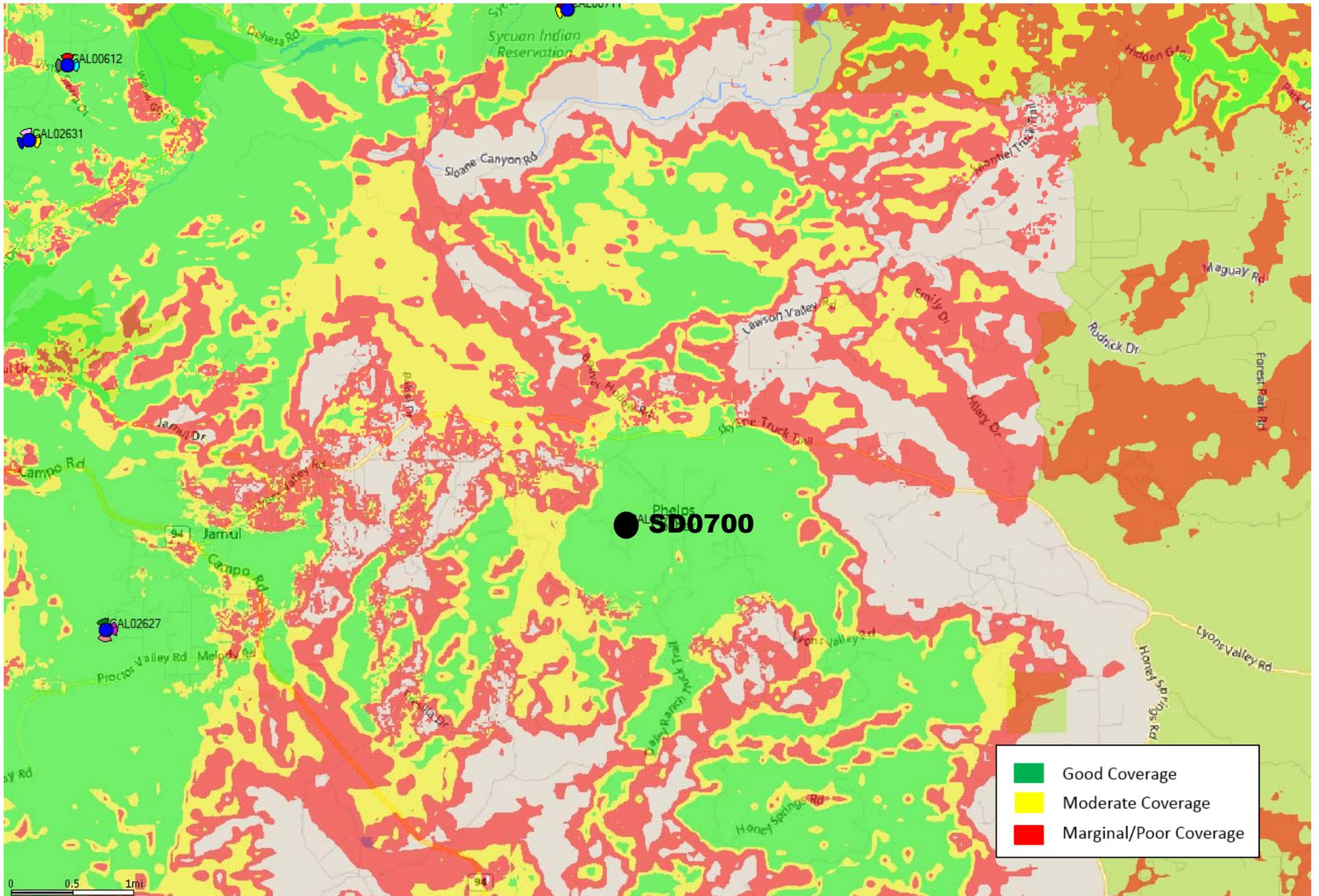
To determine where new or upgraded telecommunications facilities need to be located for the provision of reliable service in any area, AT&T's radio frequency engineers rely on far more complete tools and data sources than just signal strength from individual phones. AT&T creates maps incorporating signal strength that depict existing service coverage and service coverage gaps in a given area.

To rectify this significant gap in its service coverage, AT&T needs to locate a wireless facility in the immediate vicinity of the Property.

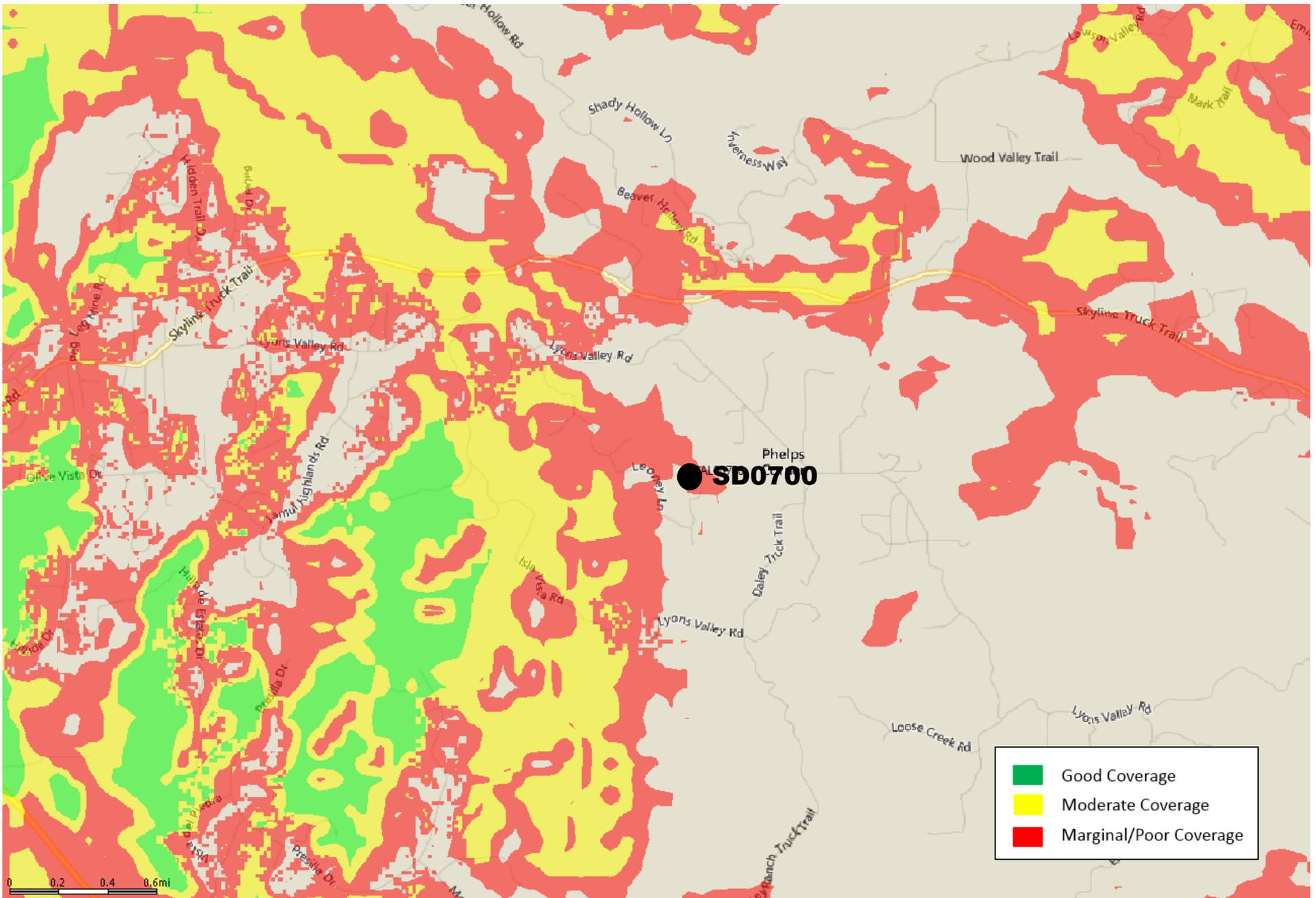
Coverage Without SD0700



Coverage With SD0700



Coverage Without SD0700



Coverage With SD0700

